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FRYER RABBIT PRODUCTION

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Fryer rabbits that have been developed rapidly and properly finished for the market weigh from 3-3/4 to 4-1/4 pounds at 2 months of age and will dress from 50 to 57 percent of their live weight. About 77 percent of the product is edible. The flesh is pearly white, fine grained, nutritious, and palatable, and is desirable for consumption throughout the year. In sections where a market for domestic rabbit meat has become established, this kind of fryer is popular; the meat is sold at butcher shops and is served regularly at cafes, hotels, and hospitals. Once constant supplies are available, the demand should increase.

The production of fryer rabbits can be on any scale, from small units of 3 to 4 does for supplementing the family meat supply to commercial rabbitries involving 300 to 500 animals.

The basis for this leaflet consists of data on 1,098 litters of New Zealand rabbits totaling 7,579 young, obtained during 5 years of experimental work at the United States Rabbit Experiment Station, Fontana, Calif.

SELECTING THE BREED

Practically all breeds of domestic rabbits are adapted to the production of fryers for home use. Commercially, however, the medium-weight and larger breeds, as New Zealands, Americans, Beverans, French Silvers, Chinchillas, and Flemish Giants, are generally used. White rabbits are most desirable because their skins usually bring higher prices in markets.

SELECTING FEEDS

Locally grown grains and leguminous hays may be used in the ration. The choice of grains for a grain and protein mixture will depend on the quality of available stocks and the cost per pound. One or more of the cereals, properly balanced with a plant protein supplement, will produce a satisfactory food mixture for does and litters. These grains, oats, wheat, barley, and the grain sorghums, all of which should be plump and sound, are similar in nutritive value and if of equal quality may be used in rations interchangeably, pound for pound, without altering the nutritive value.

The plant protein supplements, pea-sized oil cake or the pelleted form of peanut, soybean, or linseed meals, are rich in protein (35 to 44 percent) and are desirable for hand-feeding and self-feeding with whole grains. Proprietary pelleted rations do not contain a sufficient quantity of protein to permit their use as substitutes. If the pea-sized oil cake or pelleted protein is not available, it will be necessary to feed the protein as meal and to grind or crush at least half of the grains used in the mixture to cause them to adhere to the meal. The mixture should be dampened slightly just before feeding to prevent the meal from settling out in the feed trough and being wasted. The plant-protein supplement should be fresh, as indicated by a nutty odor and flavor. Legume hays should be leafy, fine of stem, pea green in color, and free from mold or dust.

Green feeds, as lawn clippings, rape, cabbage, kale, palatable weeds, waste from garden vegetables, dandelions, small limbs from trimmed fruit trees, green cereal or legume crops, sweetpotato vines, and similar materials are palatable and useful feeds. Root crops, as carrots, sweetpotatoes, mangels, turnips, and beets, may be used when green feeds are not available. All should be fresh and sound.

FEEDING DURING GESTATION PERIOD

The quantity of feed for the doe during gestation, the period between mating and kindling, should be so regulated that she will be in proper physical condition for giving birth. If she is carrying too much flesh, the quantity of feed may be somewhat reduced or if it is desired that she take on more flesh, the ration may be increased. A 10- to 12-pound doe in proper condition should be fed 2-1/2 ounces daily of one of the grain and protein mixtures given on p. 3.

Grain and Protein Mixtures for Doe During Gestation

Northwestern States

Grain and protein: 1/
- 2 parts whole oats or wheat.
- 2 parts whole barley
- 1 part linseed, soybean, or peanut meal, either in pea-sized oil cake or pelleted form.

Roughage:
- Sweetclover or alfalfa hay
- Green feed or root crops.

Salt.

Northeastern States

Grain and protein: 1/
- 2 parts whole oats.
- 2 parts whole wheat or barley.
- 1 part linseed or soybean meal, either in pea-sized oil cake or pelleted form.

Roughage:
- Clover or alfalfa hay.
- Green feed or root crops.

Salt.

Central States

Grain and protein: 1/
- 2 parts whole oats or barley.
- 2 parts whole wheat.
- 1 part soybean or linseed meal, either in pea-sized oil cake or pelleted form.

Roughage:
- Alfalfa, clover, or soybean hay.
- Green feed or root crops.

Salt.

Southwestern States

Grain and protein: 1/
- 1-1/3 parts whole barley.
- 1-1/3 parts whole milo, hegari, feterita, or kafir.
- 1-1/3 parts whole wheat or oats.
- 1 part soybean, peanut, or linseed meal, either in pea-sized oil cake or pelleted form.

Roughage:
- Alfalfa hay.
- Green feed or root crops.

Salt.

Southeastern States

Grain and protein: 1/
- 1-1/3 parts whole oats.
- 1-1/3 parts whole wheat.
- 1-1/3 parts whole milo, sagrain, or barley.
- 1 part peanut, soybean, or linseed meal, either in pea-sized oil cake or pelleted form.

Roughage:
- Vetch, lespedeza, kudzu, or soybean hay.
- Green feed or root crops.

Salt.

1/ Grain and Protein mixture--all parts by weight.

A good quality leguminous hay, salt, and fresh water should be kept before the doe at all times.

Green feeds or root crops may be fed at the rate of 1-1/2 ounces daily to begin with and if such material is economical to feed, the quantity may be gradually increased to what will be consumed daily without waste.

KINDLING

The gestation period is normally 31 or 32 days. A box with enough straw to make a nest should be placed in the hutch 27 days after the doe has been mated. She should be undisturbed and made as comfortable as possible. A day or two before kindling the doe usually consumes less feed than usual. Small quantities of green feed are tempting to the appetite at this time and have a beneficial effect on the digestive system. After kindling, the doe may be restless and should not be disturbed until she has quieted down. For commercial production the litter should be reduced, or built up, to seven young by the time they are 2 days old.

FEEDING DOE AND LITTER DURING LACTATION PERIOD

For rapid development and proper finish of the rabbit fryers by weaning time, the doe and litter should be full-fed, that is, they should receive all the grain and protein mixture and roughage (shown on p. 5) that they will consume without waste, whether they are hand-fed or self-fed.

COMPARATIVE WORTH OF HAND-FEEDING AND SELF-FEEDING

Full-feeding, whether by hand-feeding the grain and protein mixture or by self-feeding, placing each ingredient of the mixture in a separate bin so that the doe and litter will have free access to it all all times, insures rapid growth and economical development of the young. A 5-year test comparing the two systems demonstrated the superiority of self-feeding. On the average hand-fed fryers, when full-fed, weighed 3.85 pounds and those self-fed 4.10 pounds, when weaned at 56 days of age. The self-fed young weighed 6.8 percent heavier at weaning time and required 15 percent less feed to produce 1 pound of live weight than did those hand-fed. The increase in weight and the saving of feed in the case of the self-fed fryers was due to the fact that they selected the part of the ration that their body required at a given time, ate small quantities frequently and slowly, and masticated their food thoroughly. The self-feeding system has the added advantages of saving time and labor, of insuring a more uniform quality of fryer, and of preventing contamination and waste of feed.

Grain and Protein Mixtures for Doe During Lactation Period

Northwestern States

Grain and protein: 2/
- 2 parts whole oats or wheat.
- 2 parts whole barley.
- 2 parts linseed, soybean, or peanut meal, either in pea-sized oil cake or pelleted form.

Roughage:
- Sweetclover or alfalfa hay.
- Green feed or root crops.

Salt.

Northeastern States

Grain and protein: 2/
- 2 parts whole oats.
- 2 parts whole wheat or barley.
- 2 parts linseed or soybean meal, either in pea-sized oil cake or pelleted form.

Roughage:
- Clover or alfalfa hay.
- Green feed or root crops.

Salt.

Central States

Grain and protein: 2/
- 2 parts whole oats or barley.
- 2 parts whole wheat.
- 2 parts soybean or linseed meal, either in pea-sized oil cake or pelleted form.

Roughage:
- Alfalfa, clover, or soybean hay.
- Green feed or root crops.

Salt.

Southwestern States

Grain and protein: 2/
- 1-1/3 parts whole barley.
- 1-1/3 parts whole milo, hegari, feterita, or kafir.
- 1-1/3 parts whole wheat or oats.
- 2 parts soybean, peanut, or linseed meal, either in pea-sized oil cake or pelleted form.

Roughage:
- Alfalfa hay.
- Green feed or root crops.

Salt.

Southeastern States

Grain and protein: 2/
- 1-1/3 parts whole oats.
- 1-1/3 parts whole wheat.
- 1-1/3 parts whole milo, sagrain, or barley.
- 2 parts peanut, soybean, or linseed meal, either in pea-sized oil cake or pelleted form.

Roughage:
- Vetch, lespedeza, kudzu, or soybean hay.
- Green feed or root crops.

Salt.

HAND-FEEDING OF DOE AND LITTER

The day the doe kindles she should have all that she will readily consume without waste of any one of the grain and protein mixtures (p.5), and she should be given a greater quantity as her capacity and that of the litter increases. Table 1 (p.6) gives a schedule for determining the approximate quantity of a grain and protein mixture that a 10-to 12-pound doe and her litter of seven will consume. For example, a 10-pound doe and litter of seven should be fed during the sixth week following kindling 20 ounces of the grain and protein mixture daily--6 ounces for the doe and 2 ounces for each of the seven young.

TABLE 1.--Quantity of a mixture of grain and protein to be fed daily to a 10-pound doe and her litter of seven young

Week following kindling	Grain and protein to be fed to--		Average weight 1/ of litter
	Doe	Each of the young	
	Ounces	Ounces	Pounds
First	5.0	......	1.9
Second	5.5	......	3.5
Third	6.0	......	5.0
Fourth	6.0	0.75	8.0
Fifth	6.0	1.50	13.0
Sixth	6.0	2.00	18.0
Seventh	6.0	2.50	22.5
Eighth	6.0	2.75	27.0

1/ Litter of seven young averages 1 pound at birth.

A doe and litter at all times should have free access to leguminous hay of good quality, salt, and fresh water. When green feeds or root crops are available and are economical to use, the doe may be fed 1-1/2 ounces daily until the litter comes out of the nest box; then she should be fed a gradually increased quantity as the litter develops. These feeds, which are bulky and contain much moisture, should be used to supplement the grain and protein and hay ration and not to replace these feeds.

The same ration may be fed throughout the year, but the quantity consumed will depend somewhat on the season. This effect on the quantity of feed consumed, the conversion value of the feed, and the weight of the fryers in summer and winter is indicated in table 2 (p.7).

TABLE 2.--Effect of season on quantity and conversion value of feed consumed and on weight of fryers, for doe and litter of seven young

Season	Quantity of feed consumed by doe and litter					
	Between mating and weaning			Per pound of fryer when weaned		
	Grain and protein	Alfalfa	Total	Grain and protein	Alfalfa	Total
	Pounds	Pounds	Pounds	Pounds	pounds	pounds
Summer 1/............	48.06	31.24	79.30	1.99	1.46	3.45
Winter 2/............	52.54	36.27	88.81	2.11	1.35	3.46

1/ June, July, and August--average weight of fryer, 3.81 pounds.
2/ December, January, and February--average weight of fryer, 3.89 pounds.

On the average a doe and her litter of seven will consume, from time of mating to weaning of the litter in summer, a total of 79.30 pounds of feed and in winter 88.81 pounds. The fryers produced in summer, when weaned at 56 days, average 3.81 pounds, and in winter 3.89 pounds. While the doe and litter consume more feed during winter, the fryers weigh more at that season, the actual quantity of feed required to produce a pound of fryer being practically the same for the two seasons, 3.45 pounds in summer and 3.46 pounds in winter.

SELF-FEEDING OF DOE AND LITTER

A self-feeder should be given to the doe when she kindles. The ingredients in the grain and protein mixture for the various regions (p.5) may be used, but each ingredient should be placed in a separate bin. If the feeds are mixed, the rabbits will select what they desire at a given time and scratch out and waste the other feeds, but if the grains and proteins are placed in separate bins, no feed will be contaminated or wasted.

If the hutch is small (less than 10 square feet of floor space for a 10- to 12-pound doe), placing the self-feeder in it with the nest box would make it too crowded. Under these conditions it would be advisable to full-feed the doe by hand until the nest box is removed and then introduce the self-feeder.

Considerable protein is required by rapidly growing litters and the protein supplements will be consumed in larger quantities than are any of the grains. The self-feeder should be inspected occasionally to make sure that all of the feeds are always available.

WEANING THE YOUNG RABBITS

Young rabbits, whether hand-fed or self-fed, should attain the desired weight and finish at about 2 months of age. Does that are excellent mothers will nurse their litters from 6 to 8 weeks. If the young are weaned and held for several days before butchering they may fail to gain, or actually lose, weight, so they should be left with their mothers until they go to market. This makes full use of the hutch equipment.

A doe may be bred the day the young are weaned, provided she is in proper physical condition. If the litter is reduced in size early in the lactation period, she may be bred earlier. When the litter is removed from the hutch and the doe bred, the feeding schedule for the gestation period (p.3) should be followed.

THE SELF-FEEDER

An inexpensive, easily constructed self-feeder may be made. Two types are illustrated in figures 1 and 2. One (fig. 1) is constructed from a 5-gallon oil can, the side of an apple box, 3/8-inch plywood, or other wood material of similar thickness, two strips of 26-gauge galvanized iron, 30 inches long, and one piece of 26-gauge galvanized iron, 11-1/2 inches square. The other type (fig. 2) is also constructed from a 5-gallon oil can and an apple box or other wood material of similar thickness. The first kind is more easily constructed but the second is less expensive. In making either, it will be desirable to check the outside measurements of the oil can used; the detailed suggestions made are for a can 9-3/8 inches wide by 13-3/4 inches high.

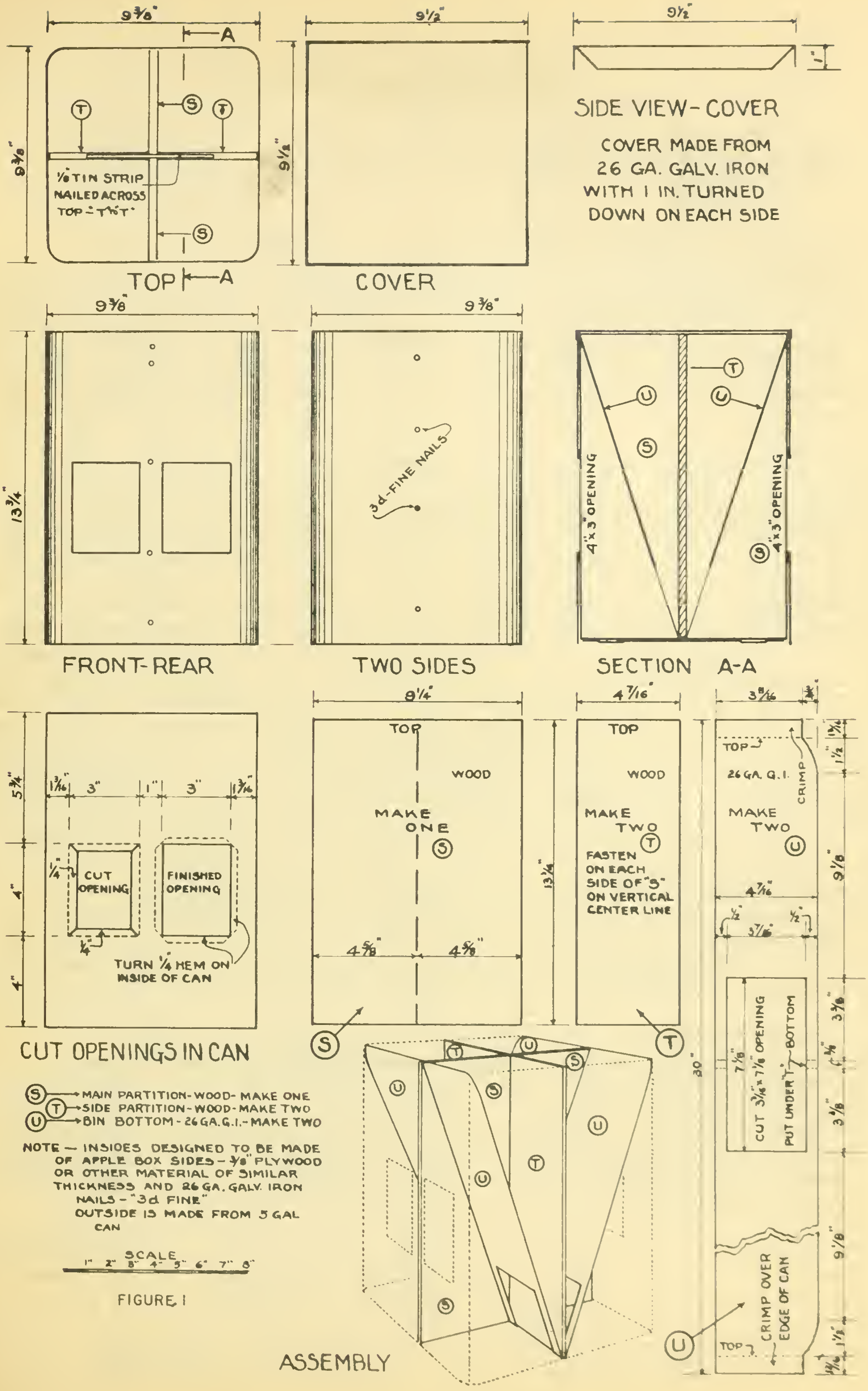
Directions for Constructing Two Types

Type 1.--Cut the top out of a 5-gallon oil can and clean the can thoroughly. Cut two openings in both front and rear of the can (see "front-rear" in drawing, fig. 1). These should each be 4 inches from the bottom and, when finished, should be 4 inches high by 3 inches wide. The openings, as cut, should be smaller than when finished to allow for a 1/4-inch hem to be turned on the inside of the can to make a smooth edge (see "front-rear" and "cut openings in can," fig. 1).

Use a side of an apple box, 3/8-inch plywood, or other wood material of the same thickness for the partitions (S and T). Make one main partition (S) and two side partitions (T).

Cut two bin bottoms (U) out of 26-gauge galvanized iron. The galvanized strips should each be 30 inches long and 4-7/16 inches wide. An opening 7-1/8 inches long and 3-7/16 inches wide should be centered 15 inches from one end of the strip and 1/2 inch from each side.

The two top outside corners of each strip (U) should be cut out 3/4 inch by 13/16 inch and the projecting shoulder rounded off 1-1/2 inches to permit the strips (U) to fit snugly into the rounded corner of the can.

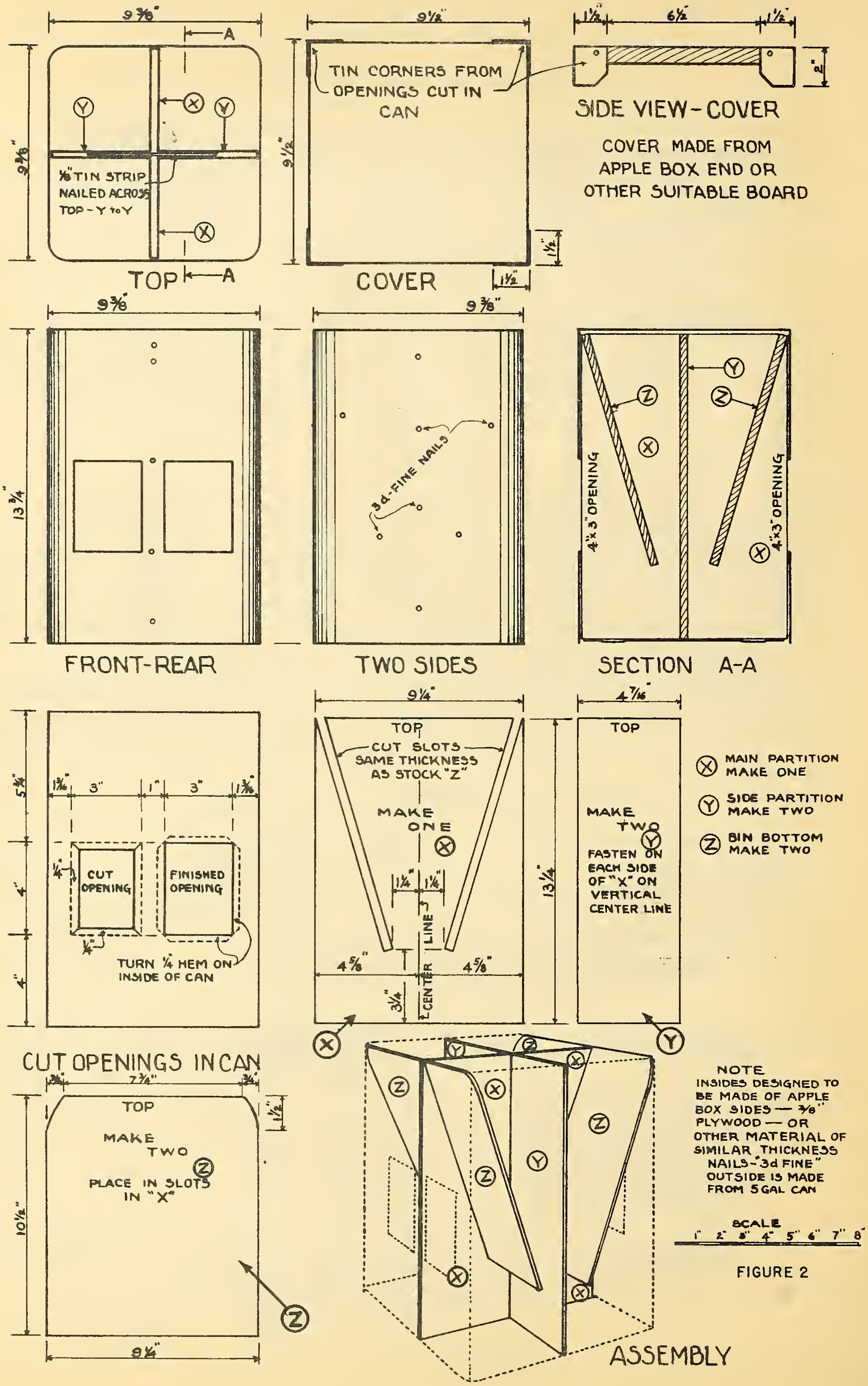


Ⓢ → MAIN PARTITION - WOOD - MAKE ONE
Ⓣ → SIDE PARTITION - WOOD - MAKE TWO
Ⓤ → BIN BOTTOM - 26 GA. G.I. - MAKE TWO

NOTE — INSIDES DESIGNED TO BE MADE OF APPLE BOX SIDES - 3/8" PLYWOOD OR OTHER MATERIAL OF SIMILAR THICKNESS AND 26 GA. GALV. IRON
NAILS - "3d FINE"
OUTSIDE IS MADE FROM 5 GAL CAN

SCALE
1" 2" 3" 4" 5" 6" 7" 8"

FIGURE I



NOTE
INSIDES DESIGNED TO BE MADE OF APPLE BOX SIDES — 3/8" PLYWOOD — OR OTHER MATERIAL OF SIMILAR THICKNESS NAILS - "3d FINE" OUTSIDE IS MADE FROM 5 GAL CAN

FIGURE 2

In assembling the self-feeder three 3-penny, fine nails should be equally spaced on the center line of the main partition (S) and driven through it, after which it is turned over and placed on one of the side partitions (T) that is standing on edge. The partition (T) is then securely fastened to the median line of S by three more nails. The other side partition (T) is then fastened to S by driving it down on the three protruding nails.

Fasten a 1/8-inch tin strip across the top edge of the two partitions (T) (see "top," fig. 1) to prevent spreading. The assembled pieces S and T should be placed on a flat surface, top down, and the bin bottom (U) centered on the bottom of side partition (T), being sure that the rounded corners are opposite the main partition (S). Secure one bin bottom (U) to one partition (T) with two 3-penny, fine nails; then center and fasten the other bin bottom (U) to the opposite side partition (T) in like manner.

The assembled parts, (S, T, and U) (see "assembly," fig. 1) are now ready to be placed in the 5-gallon can and are fastened to the can with 3-penny, fine nails, as shown on the "front-rear" and "two sides" drawings. Bend and crimp top of U over edge of can to secure bin bottoms. Tack the can to the bottom of S and T to prevent sagging.

A piece of 26-gauge galvanized iron 11-1/2 inches square should have the corners cut and 1 inch turned down on each side to form a cover (see "side view - Cover," fig. 1).

Type 2.--Cut the top out of a 5-gallon oil can and clean the can thoroughly. Cut two openings in both front and rear of the can (see "front-rear" in drawing, fig. 2). These should each be 4 inches from the bottom and, when finished, should be 4 inches high and 3 inches wide. The openings, as cut, should be smaller than the finished openings to allow for a 1/4-inch hem to be turned on the inside of the can to make a smooth edge (see drawing of cut and finished openings, fig. 2).

Use a side of an apple box, 3/8-inch plywood, or other wood material of the same thickness for parts X, Y, and Z. Make one main partition (X), two side partitions (Y) and two bin bottoms (Z). Cut two slots in main partition (X) to receive the two bin bottoms (Z), and fasten the two side partitions (Y) one on each side of X on the vertical center to form four compartments.

In assembling X, Y, and Z three 3-penny, fine nails should be equally spaced on the center line of the main partition (X) and driven through it, after which it is turned over and placed on one of the side partitions (Y) that is standing on edge. The partition (Y) is then securely fastened to the median line of X by three more nails. The other side partition (Y) is then fastened to X by driving it down on the three protruding nails.

Fasten a 1/8-inch tin strip across the top edge of the two partitions (Y) (see "top" fig. 2) to prevent spreading.

Center the two bin bottoms (Z) in the slots in X and secure with 3-penny, fine nails.

The assembled pads (X, Y, and Z) (see "assembly" fig. 2) are now ready to be placed in the can and are secured to it with 3-penny, fine nails, as shown on the "front-rear" and "two sides" drawings (fig. 2). Tack the can to the bottom of X and Y to prevent sagging.

The cover, 9-1/2 inches square, is made from an end board of an apple box. Four tins, each 2 by 3 inches, for securing the corners are made from openings cut in the can (see "side view - cover" fig. 2).